California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov

***ARNOLD SCHWARZENEGGER**, Governor*
***DONALD KOCH,** Director*

Trout in the Classroom

Guide To Your Classroom Aquarium

San Francisco Bay Area

This is a generic guide to setting up your classroom aquarium. The actual materials you use may vary.

You must have a valid permit from the Department of Fish and Game to hold, hatch and release fish or other wildlife.

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This booklet was created by Gerry Ng and Derrel Bridgman.

If you have questions, contact your sponsor organization or the Department of Fish and Game at (415) 892-0460 or erotman@dfg.ca.gov
www.classroomaquarium.org
10/09

Conserving California's Wildlife Since 1870

Aquarium Instructions & Owner's Manual

Congratulations! You are just a few simple steps away from converting your standard 10-gallon aquarium into a cold-water aquarium.

With this setup, you should be able to maintain up to 10 gallons of water at a temperature 20 degrees F below the ambient room temperature. For example, you should be able to achieve a water temperature of 50F or below at a room temperature of 70F. The temperature controller allows you the ability to set your desired temperature between 45F to 65F.

This setup has proven very effective for Salmon, Steelhead, and Trout egg hatching.

Before beginning any assembly, take a few moments to familiarize yourself with these instructions and all of the components contained in this kit by laying them out and comparing them with the material list. Several of the parts are similar, but not exactly the same. It is very important that the correct parts are used.

10 Gallon Aquarium Dimension Variations

While all standard 10 gallon glass aquariums are roughly 20" x 10" x 12", the dimensions of your aquarium will likely vary slightly from these dimensions. For this reason, we have made the insulation panels large enough to accommodate those aquariums which are slightly larger than the standard. Therefore, you may need to trim several of the thin black insulating panels to achieve a perfect fit on your aquarium

Pre-assembled Components

For your convenience, we have already applied the insulation panels to the AquaClear Mini Power Filter and correctly installed the IceProbe into the power filter top lid.

We have also slide a washer onto the power filter draw tube. This washer allow you to achieve a good seal when inserting the power filter draw tube into the under gravel filter draw pipe.

Detailed System Instructions and Warranties

Major systems or components such as the IceProbe, Temperature Controller, and Power Filter each come with their own instructions and warranty information. Please review each of these instructions in addition to this document.

Material List:

Qty	Description
1	**IceProbe Thermoelectric Water Cooler, 50W**
1	**120VAC to 12VDC Power Converter, 63W**
1	**TEC45FADJ Proportional Temperature Controller (45F to 65F)**
1	**AquaClear Mini Power Filter (o-ring attached to draw tube)**
1	**Acrylic Viewing Pane (20" x 12" x 5/16")**
1	**Under Gravel Filter with Extension Tube**
1	**Suction Cup Thermometer (located in power filter box)**
1	**3" Fish Net**
1	**Power Filter Insulation Kit (attached to power filter at factory)**
1	**Condensation Barrier and Gasket Kit**
1	**Outer Insulation Panel Kit**

Assembly Instructions:

1. Identify all parts indicated on the material list and attached drawings.
2. Become familiar with the proper orientations of all insulating panels and gaskets before removing adhesive backings. It is important to orient each piece properly to avoid adhering a panel in the wrong place or orientation.
3. Adhere the Back, Bottom and Side Condensation Barriers directly to the outside of the aquarium glass surface. If the barriers are too large, use the enclosed razor blade to gently trim the barriers to size. Either trim the barriers to size using a straight edge before removing the adhesive strips or adhere the barrier to the glass and gently run the razor blade just under the plastic trim to remove the excess. The side of the condensation barriers with adhesive strips along all four sides should be pressed against the glass. The bottom barrier has adhesive only on one side; the back and side gaskets have two adhesive strips which will face out after they are attached to the glass. When properly trimmed, the insulation barriers should fit inside the plastic trim and cover the entire side, back and bottom glass surfaces.
4. Completely clean the outside of the front viewing glass surface with a suitable glass cleaner. Once the acrylic panel is attached, it will be impossible to clean the front glass surface of the aquarium.
5. Apply the "Glass to Acrylic Panel Gaskets" around the edges of the glass in the front viewing surface of the aquarium. The gasket strips are 1 inch wide with adhesive on BOTH sides. The gaskets are first adhered around the outline of the glass just under the plastic trim on the top, just above the plastic trim on the bottom, and along the two side edges. The acrylic panel is later pressed onto these gaskets to create a "double pain window" to allow for viewing without excessive temperature loss. Only remove the adhesive backing from one side at this point to simplify handling while applying the gasket strips to the glass.

6. Place Bottom Outer Insulation Panel on a flat surface and center aquarium on it. The bottom panel is the largest of the panels (14" x 24").
7. Remove the thin plastic protective covers from the acrylic glass panel. Clean the acrylic with a suitable glass cleaner to remove any dust or finger prints. Remove the adhesive backing from the gaskets strips attached to the front of the aquarium and gently press the acrylic panel over the gaskets. The acrylic panel should be centered as best possible from side to side. Apply pressure with your fingers to the acrylic panel all the way around the gasket area to ensure that the panel is well adhered to the gasket.
8. Remove the adhesive backing on the back condensation barrier and attach the Back Outer Insulation Panel. The back panel is 13" High x 20.25" Long and has a notch in one corner. When properly positioned, the notch should be in the upper right hand corner when viewing the aquarium from the back. The "notch" is the location where the power filter will ultimately be placed.
9. Position the Front Outer Insulation Panel against the acrylic panel on the front side of the aquarium with the Velcro tabs facing out and the black condensation barrier gasket strips pressing against the acrylic. You are performing this step so that you can properly orient the side panels before adhering them.
10. Remove the adhesive backing on the side condensation barriers and attach the Side Outer Insulation Panels. The Velcro tabs on the side panels should be facing out and positioned next to the matching tabs on the outer front insulation panels. A Velcro strap is used to fasten the front panel to the side panels allowing it to be easily removed whenever viewing is desired. Make sure to position the side insulating panels such that the front insulation panel can be pressed firmly against the acrylic without actually touching the side panels. To be safe, leave a small gap between the edge of the side panel and the front panel to ensure that the front panel seals properly against the acrylic without interfering with the side panels. When properly positioned, the top edges of the front, side, and back panels should all be the same height (13") so that the insulating lid lies evenly across the top of each.
11. Secure the front outer insulation panel to the side insulation panels with the Velcro strips found in the power filter box.
12. Attach the draw tube to the under gravel filter. Orient the under gravel filter such that the draw tube is extending up in the back, left hand corner of the aquarium while facing it from the front.
13. Attach the suction tube to the power filter following the directions in the power filter box. Note that suction tube can telescope to proper length.
14. Hang power filter on back of aquarium where the notch is located in the back insulating panel. Insert the draw tube from the power filter into the suction tube. Slide O-ring on suction tube down so that it seals area between suction tube and draw tube. This will force water to be pulled through the gravel and then up into the suction tube of the power filter.
15. Place filter media into power filter per instructions.
16. Carefully position IceProbe/lid on top of power filter. Make sure that the lid is completely seated to ensure that IceProbe does not fall off. When properly positioned, the power cord from the probe should be towards the back of the aquarium.
17. Remove the adhesive backing from the Velcro on the back of the TEC45 controller and press in onto either the side panel or back panel by the power filter. For simplicity

in wiring, it is often more convenient to orient the controller upside down so that all the wiring is facing up, or sideways so that all the wires face towards the back. Either way, make sure that you can access the controller so that you can adjust the temperature setting as needed. Also, orient the controller fairly close to the top of the panel so that the temperature sensor can be easily dipped into the water. Generally, the temperature sensor will enter the water just in front of the power filter.

18. Connect the power supply and IceProbe to the temperature sensor per supplied instructions.
19. Attach thermometer to inside of front glass.
20. Place top insulating cover on aquarium with label facing up.

Your system is now fully assembled. Please make sure that you add water BEFORE plugging in the power filter.

It is OK for the IceProbe to run dry, in fact we encourage it! Plug the IceProbe in and let it run for a few minutes and then touch the probe to see how cold it is. If you let it run long enough in the open air it will actually form ice crystals around the probe!

After you get your system up and running, it will take about 48 hours before you achieve the maximum temperature drop. Most of the temperature drop will occur in the first 12 hours, but it will keep going unit it reaches the maximum equilibrium temperature offset.

Written by Gerry Ng, Diablo Valley Fly Fishers

Cleaning Your Tank

Your tank and equipment needs to be cleaned at the beginning of the season and at the end before storage. Clean equipment is key to successfully hatching fish. Conversely, dirty equipment leads to fish mortality.

Remember how the pieces came apart so you can put them back together.

1. Take cart and tank to a room with a big sink (custodian's room usually works best.)

2. Use the siphon to empty as much water from the tank as possible. When it is near empty, tip the tank to make sure you get out as much as possible.

3. With your hands, take as much gravel out of the bottom of the tank as possible being careful not to break the plastic under gravel filter plate. Lift the heat exchanger out of the tank but be careful not to kink the padded hose attaching it to the refrigeration unit.

4. Carefully tip the tank up on the side of the sink and rinse out any excess gravel or scum using the custodian's hose.

5. Fill the tank with warm water to a depth of about 5 – 8 cm. Add ¾ of a cup of vinegar to this water and scrub the inside of the aquarium with a nonabrasive scrub pad.

6. Take apart the powerhead as well as the water filter basket (all filters can be discarded). Be sure not to place electrical motorized appliances in the water. They can be wiped down. **There is a piece of glass under the light that is very delicate, please be careful.**

7. Everything such as the siphon hose, thermometers, nets and anything else used in or around the aquarium should be scrubbed in the vinegar water. The cart will also need to be scrubbed clean and dried before the tank is replaced.

8. Scrub and rinse the inside of the tank once again.

9. Carefully dump the water into the sink and rinse the inside of the tank one more time.

10. Dry the tank and all of the pieces and reassemble.

11. If there is an air compressor available, use it to get the dust out of the fan in the refrigeration unit on the bottom shelf.

Helpful Hints For Your Classroom Aquarium

The optimal water temperature for your aquarium is 48–50°F.
The warmer the water, the faster the eggs develop. However, in warmer water the fish eat more food and produce more ammonia. To calculate when your fish will hatch, see page on calculating TU's (thermal units) located in "Trout and Salmon Go To School".

The ammonia level in your tank should be kept at zero.
If the pH level is neutral (7.0–7.2), trace amounts of ammonia (0.2–0.4 PPM) are tolerable. Higher levels will poison the fish. If you experience an ammonia problem, change 10–25% of the water daily until the ammonia levels are zero. Persistent ammonia problems may be caused by overfeeding, an inactive bio-filter, and/or have too many fish in the aquarium.

Over feeding is one of the most common problems in aquariums.
Do not put food into your aquarium until the eggs have hatched and the fry are buttoned-up. At this stage, the fry will be swimming on their own and no yolk sac will be visible. When you are ready to feed your fish, only put in the tank the amount of food the fish will eat in 3-5 minutes. Leftover food will pollute your tank water and is a breeding ground for disease. It is better to underfeed your fish that to overfeed them.

Frequent water changes can be beneficial to your aquarium.
Water changes help to keep the ammonia level low and the water clean. We recommend that you change 15% of the tank water every week. This is most effectively done with an aquarium siphon tube so you can vacuum waste and uneaten food off the tank floor. Add only dechlorinated water back into your tank.

Do not add plants to your aquarium.
Your small closed aquarium system is not designed to accommodate both fish and plants. If you have vigorous plant growth, the plants will compete with the fish for oxygen when they respire at night. If your plants begin to decay, this will produce excess ammonia in your tank and deplete the oxygen in the water.

Do not clean all filters.
In most cases, your tank should have two types of filters. The flat filter (flat, blue, filled with carbon) can be changed as frequently as you like. However, the bio-wheel (round) should not be cleaned. It is "alive" with beneficial bacteria that help to break down ammonia. The only exception to this is if your bio-wheel is clogged with debris. At this stage, you should be changing your tank water anyway and you can gently shake off the debris on the filter in the water you are changing out.

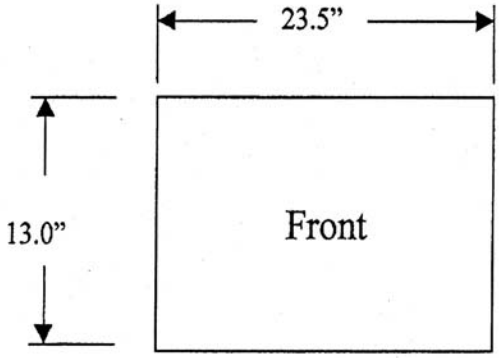
Drawings for Outer Box & Condensation Barrier

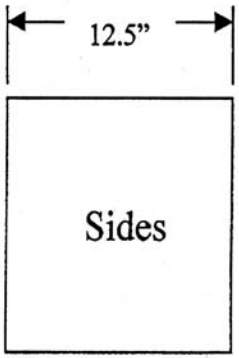
Material Specifications:

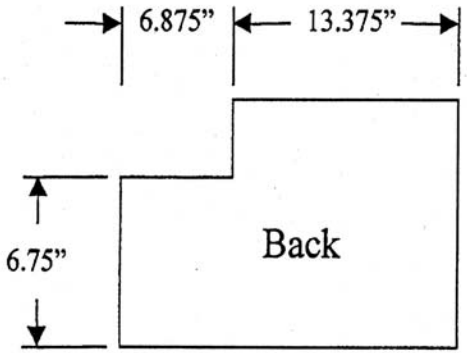
- EPS, 2#, White
- Material Thickness = 1.5”
- Clean Cut Edges

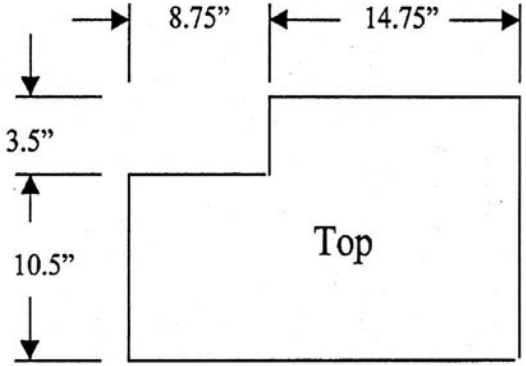
10 Gallon Aquarium
Insulation Kit
Outer Panels

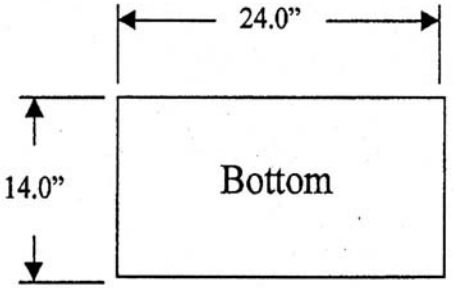
GERRY NG
TROUT IN THE CLASSROOM
8 SAN PEDRO PL
SAN RAMON. CA 94583
(925) 829-4974
(925)829-3717
fish_ng@hotmail.com











Last Revised: 1/26/03

Material Specifications:

- Polyolefin, Black
- Material Thickness = .187"
- Clear Adhesive, One Side Unless Noted

10 Gallon Aquarium Insulation Kit Condensation Barriers and Gaskets

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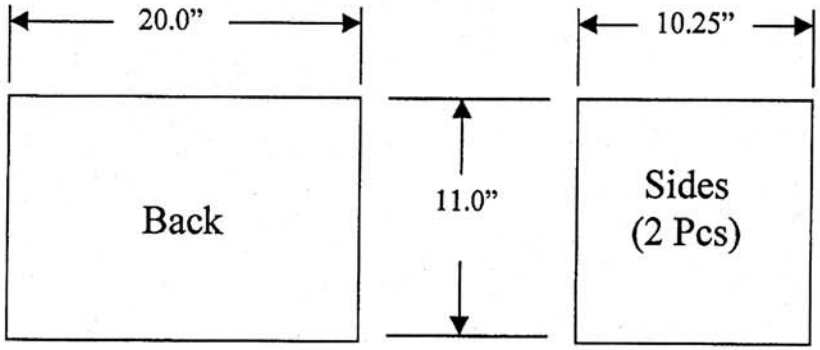
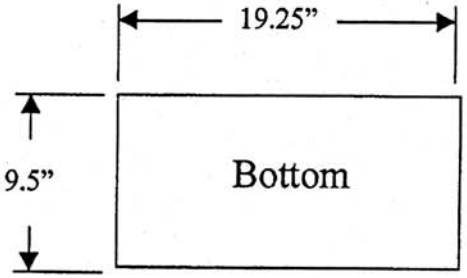
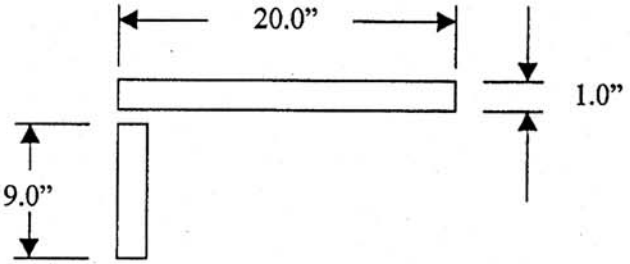
fish_ng@hotmail.com





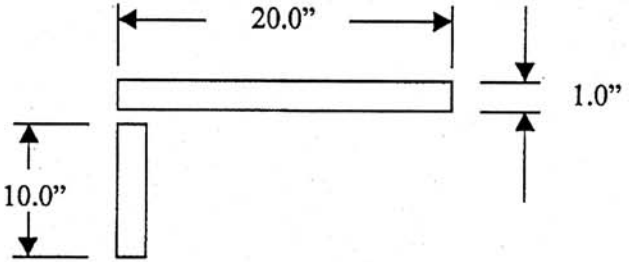
Acrylic Panel Gasket:

(2 Pieces of Each, Adhesive on Both Sides)



Front Insulation Panel Gasket:

(2 Pieces of Each)



Last Revised: 1/26/03

Material Specifications:

- Polyolefin, White
- Material Thickness = 1"
- Clear Adhesive on One Side, all parts shown from non-adhesive side(i.e. adhesive should be placed on the back side of the parts as shown below)

AquaClear Power Filter Insulation Kit

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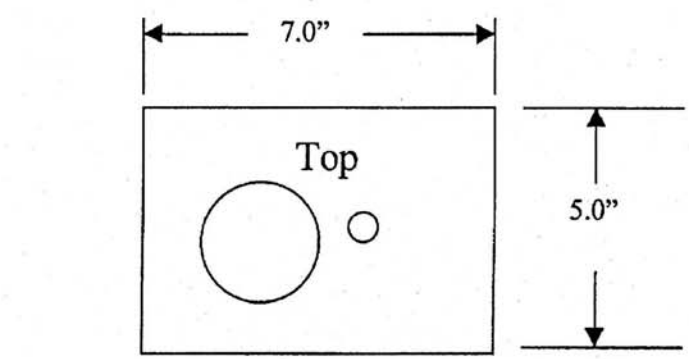
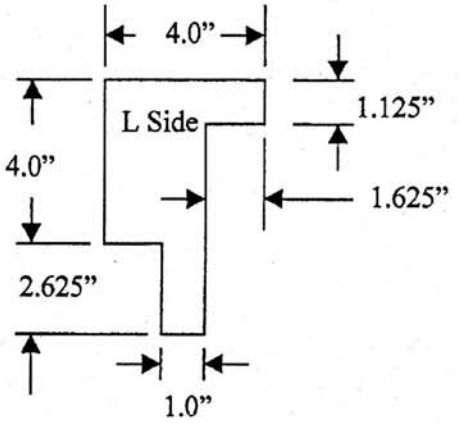
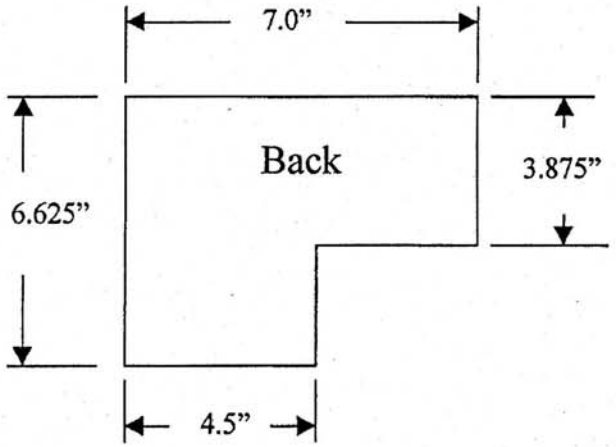
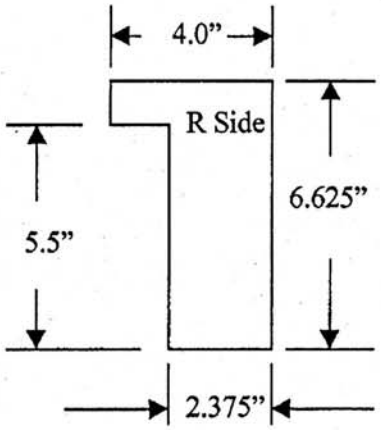
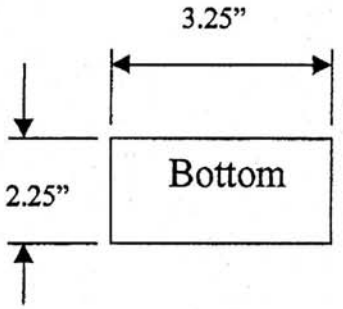
8 SAN PEDRO PL
SAN RAMON. CA 94583
(925) 829-4974
(925)829-3717
fish_ng@hotmail.com











Last Revised: 1/26/03

Materials List:

Aquarium Insulation Kit – 10 Gallon Tank

Qty	Description
1	LexanViewing Pane (20" x 12" x .093")
1	Condensation Barrier and Gasket Kit
1	Outer Insulation Panel Kit

Lexan Front Pane- Home Depot .

Purchase a 33GE XL10 12X24 X .093 Sheet and trim the 24" length to 20" or the width of your aquarium. This will cover the glass area of the aquarium and is UV protected. Attached with double tape and foam strip.

NOVA Tech- Ice Probe
819 A Street,
San Rafael, CA 94901
415-460-6812
Contact**:** ULF (pronounced Olf)

IceProbe Thermoelectric Water Cooler, 50W
120VAC to 12VDC Power Converter, 63W
TEC45FADJ Proportional Temperature Controller (45F to 65F)

Outer Insulation:

VICTORY FOAM INC
Phone: 714-619-8562
Drawings are on file with Victory Foam. You have to purchase 25 units of each to have them manufacture.

PART #	QTY	DESCRIPTION
27050	25	INSULATION KIT- 10 GALLON
27051	25	INSULATION KIT - FILTER
27052	25	INSULATION KIT PACKAGE 10 GALLON AQUARIUM OUTER KIT PANELS

Available at most pet stores

Thermometer
Net
Under Water Gravel
Aqua Clear 20
10 Gal Aquarium

Contacts

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10/09